

Understanding Steroids and the ACTT ELISA Assay

Q Do I need to withdraw the use of steroids in my patient prior to allergy testing with Bio-Medical Services?

A No. Bio-Medical Services performs *in vitro* serum testing for the measurement of allergen-specific IgE in patient sera. The ACTT ELISA assay uses a highly purified, affinity-pure polyclonal anti-IgE antibody as the reporter antibody. Our test is highly reproducible, sensitive and accurate. It is NOT affected by the prior use of steroids in a patient. Here's why:

The immune system is comprised of two basic components:

1. Cellular: made up of T and B lymphocytes which circulate throughout the body.
2. Humoral (liquid): comprised of serum antibodies, produced by B cells. There are five types of antibodies: IgG, IgE, IgA, IgM and IgD. All have different functions.

When allergies are present, T cells perform several functions:

1. During initial sensitization, T cells present allergenic proteins to B cells.
2. T cells trigger IgE production in B cells.
3. B cells develop into plasma cells, which begin producing IgE antibody specific for the allergen presented by the T cell.

What happens when steroids are given?

Glucocorticosteroids are commonly given to an allergic patient because they act in the body to reduce inflammation. Steroids suppress cell-mediated immunity. They reduce inflammation in a number of ways, by:

1. Depleting tissue-based mast cells, the predominant cell type causing allergic inflammation.¹
2. Depleting inflammatory eosinophils and basophils.²
3. Preventing IgE-triggered degranulation of mast cells, thus blocking early phase immediate hypersensitivity reactions.²

Why don't steroids decrease IgE levels?

1. Steroids act directly upon the T cell part of the cellular arm of the immune system. B lymphocytes are only indirectly affected, since they function in the humoral component of the immune system. Therefore, B lymphocytes that are programmed to make IgE continue doing so, even in the presence of steroids.
2. Studies have shown that while treatment with glucocorticoids improved the patient's allergic symptoms, steroids either had no effect on serum IgE levels, or slightly enhanced them.³⁻⁷
3. **Since it has been shown that IgE levels do not fall in direct response to steroids, it is not necessary to withdraw your patient from steroid treatment prior to submitting a serum sample for allergy testing with Bio-Medical Services.**

Q What affect does the use of antihistamine or cyclosporine have on IgE levels?

A None. Antihistamines specifically target the inflammatory effects of histamine by blocking histamine receptors on mast cells and other types of inflammatory cells. They have no effect upon serum IgE levels.

Additionally, a recent study showed that Atopica given for 30 days before *in vitro* testing had no effect upon serum IgE levels in atopic dogs⁸.

Literature Cited

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